

TECHNICAL NOTES

U. S. DEPARTMENT OF AGRICULTURE

NEVADA

SOIL CONSERVATION SERVICE

TN - BIOLOGY - NV-20

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PLANNING THE SMALL TROUT HATCHERY

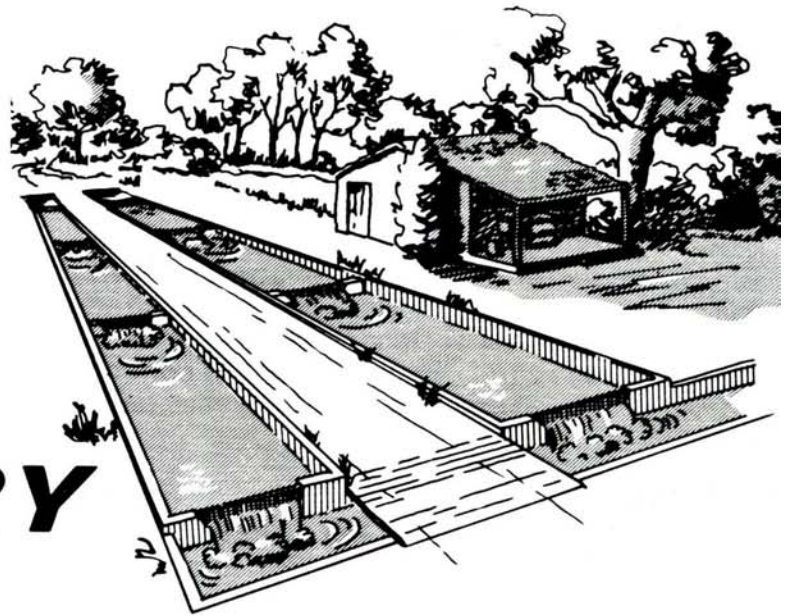
Attached is information for your use when planning a small trout hatchery.



Jim W. Doughty
State Resource Conservationist

Planning the

SMALL TROUT HATCHERY



In Nevada

A small trout hatchery for hatching eyed eggs is easy to construct and operate with a relatively small, dependable water supply. A sizable hatchery is more complicated and requires a larger, constant water supply.

Eyed trout eggs are readily available from private trout enterprises, easy to hatch and much cheaper than fish. With advance arrangements, any surplus hatch usually can be sold to neighbors who have ponds. Anyone who sells fish needs a commercial permit.

Water Supply

Any spring, diverted stream or pumped well water will do if it is of good quality, is properly aerated, and has temperatures of 45 to 52° F. The amount of water for 100,000 eggs should be 5 to 15 gallons per minute whether a trough or a barrel is used. The higher rates of flow should be used with warmer waters. A 4-hour reserve water supply and an alarm system should be incorporated to safeguard against a failure of the water supply.

Housing

Shelter for hatching facilities is recommended to avoid predation and vandalism and for protection against the weather. The corner of a barn or the use of an existing outbuilding will provide adequate housing for hatchery troughs and equipment. Lacking this, wooden-framed concrete-floored hatchery building should be constructed and sized to accommodate the size, arrangement, and numbers of hatchery troughs needed. Use incandescent lighting, as fluorescent lights and direct sunlight can affect the survival of the embryo. Cover egg baskets to shield eggs from direct light rays.

Hatchery Trough

The standard hatchery trough is 16 feet long, 16 inches wide and 7½ inches deep.

The hatchery trough should have a 1 inch fall in 16 feet. A trough 16 feet long can hold 3 baskets (100,000 eggs). The trough may be constructed of 2-inch lumber and should be watertight. From 5 to 15 gallons of water per minute should pass through the trough. Thin metal dividing plates which (1) hold water level at proper height; and (2) allow water to upwell under hatching basket can be arched in place, (see figure 2.). Aluminum alloys or plastic are recommended. The use of galvanized material should be avoided, as zinc in very small concentrations is lethal to trout. Fiberglass troughs are available from hatchery equipment companies.

Egg Baskets

The standard egg holding basket is 24 inches long, 14½ inches wide and 6 inches deep. Mesh size of basket for rainbow trout eggs is about 7 meshes per inch. The baskets are constructed with a rectangular wood frame which rests on top of the hatchery trough. Each basket will hold approximately 35,000 rainbow trout eggs.

Barrel Hatchery

A satisfactory container for hatching eyed eggs is a 20-gallon barrel that has been thoroughly cleaned and painted with lead-free paint or nontoxic-type paint. The barrel is modified to hold a stainless steel or plastic screen 12 inches from the bottom of the barrel upon which rests 4 inches of pea-sized gravel and 6 inches of eyed eggs.

There is a one inch inlet at the bottom of the barrel which allows the water to upwell through the screen, gravel, and eggs, and over the lip of the barrel, (see figure 1.). Water flow should be adjusted to approximately 10 gallons per minute.

As the eggs hatch and the sac-fry become more mobile, the water current carries them out over the top of the barrel and into a trough. Here they will complete the absorption of the yolk-sac. It takes about two weeks or less for the sac-fry to absorb the attached yolk-sac. At this time, the fish actively swim up and will begin accepting food. Next, place them in a compartment of a raceway and as the fish become larger, allow them to use all of the raceway. (See Animal Guide "Trout Management in Raceways.")

Feeding

A number of feed companies offer pelleted fish foods and instructions for feeding. An automatic "fry feeder" is a device, which can be purchased, that periodically drops a specific amount of food at any time interval desired and is very useful for feeding young trout during the first month or longer when it is necessary to feed small amounts at frequent intervals

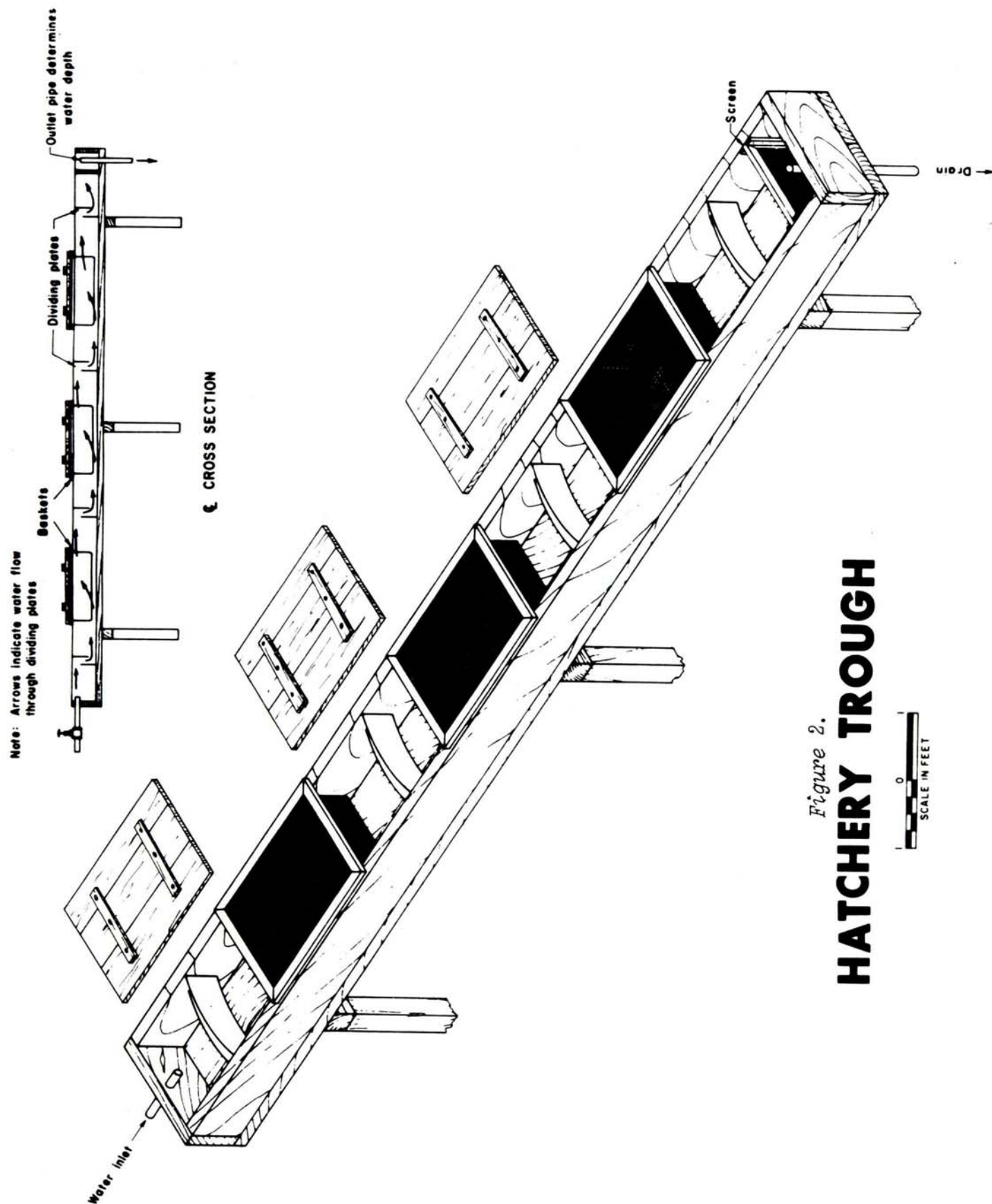


Figure 2.
HATCHERY TROUGH

General

Do not crowd rearing fish beyond recommended stocking rates. Crowded conditions can cause disease problems.

Extremely helpful advice on raising trout is available at State hatcheries where the personnel will often take the time to answer questions. The Soil Conservation Service Biologist can be of help to anyone wishing more information.

Figure 1.

BARREL HATCHERY

